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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,660	03/24/2004	Jin Hong	8021-223 (SS-19132-US)	4315

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EXAMINER	
MOORE, KARLA A	
ART UNIT	PAPER NUMBER
1763	

MAIL DATE	DELIVERY MODE
07/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,660	HONG ET AL.	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,816,098 to Davis et al. in view of U.S. Patent No. 5,909,994 to Blum et al.

4. Davis et al. disclose a remote plasma enhanced cleaning apparatus substantially as claimed and comprising: a main process chamber (Figure 5A, 104); a load lock chamber (12) connected to the main process chamber, wherein the main process chamber comprises a staging device (105) adjacent to the loadlock chamber for loading

the silicon wafers from the load lock chamber into the process chamber and for unloading the silicon wafers from the main process chamber into the loadlock chamber; and a carrier robot (106) disposed in a center portion of the main process chamber, wherein the carrier robot rotates and moves around a center of the main process chamber and transfers silicon wafers to an adsorption assembly, an anneal assembly, and a cooling assembly, and wherein the assemblies are disposed in the main process chamber around the carrier robot and spaced apart from one another. Davis et al. disclose that a plurality of process assemblies (modules) are provided in the main chamber (column 7, rows 17-26). The process modules can be configured to be capable of adsorption (column 17, rows 46-47 and column 25, rows 36-39), annealing (column 25, rows 60-63) and/or cooling (column 19, rows 34-37) as needed. Davis et al. disclose that the number of process assemblies can be provided as needed. Two process assemblies (modules) capable of adsorption, annealing or cooling could be provided in the apparatus. The stages in each of the process modules comprise lift pins for moving the substrates upward and downward (column 17, rows 56-59).

5. Davis et al. disclose the apparatus substantially as claimed and as described above.

6. However, Davis et al. fail to explicitly teach two stages (adsorption, annealing or cooling) in a single processing chamber.

7. Blum et al. teach providing tandem processing stages in a single processing chamber (housing) of a multi-chamber processing tool for the purpose of providing a

tool capable of uniform wafer processing and high throughput (column 2, rows 25-32 and column 12, rows 12-22).

8. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a tandem processing stages in Davis et al. in order to provide a processing tool capable of both uniform wafer processing and high throughput as taught by Blum et al.

9. With respect to claim 3, Davis et al. disclose using a remote plasma generator (column 32, rows 19-21).

10. With respect to claims 4 and 8, the stages in each of the process modules comprise lift pins (column 17, rows 56-59).

11. With respect to claims 6 and 16, heating means are provided heating wafers on anneal stages (column 43, rows 22-31).

12. With respect to claims 7 and 17, the annealing assembly may comprise heating wires and lamps (column 43, rows 22-31).

13. With respect to claim 10, the cooling assembly comprises cooling means for cooling the silicon wafers on cooling stages (column 19, rows 34-37).

14. With respect to claim 11, the cooling means comprises a gas supply pipe for supplying a cooling gas to the chamber or to the stage (column 19, rows 34-37).

15. With respect to claim 12-13, 15 and 18-20, Davis et al. disclose using a remote plasma generator (column 32, rows 19-21). Also disclosed are gas supply pipes for supplying a cooling gas to the chamber or to the stage (column 19, rows 34-37). Each of the other recitations is addressed above.

16. With respect to claim 14, Davis et al. disclose each of the chambers may have a first gas injection pipe (Figure 16, 250) and a second gas injection pipe (212).

Response to Arguments

17. Applicant's arguments filed 23 May 2007 have been fully considered but they are not persuasive. Examiner disagrees with Applicant that the relied upon prior art fails to render the claimed invention obvious. As described above, Davis teaches providing a plurality of different processing stages in a main chamber. Blum provides teachings along with the requisite motivation for providing two stages in a single chamber (housing). The combination of the two references renders the claimed invention obvious. Examiner does not contend (and has not contended) that either anticipates or renders the claimed invention obvious in and of themselves.

18. Applicant continues to argue that the relied upon prior art fails to teach features which are not claimed. For example, Claim 1 recites "an adsorption assembly comprises two adsorption stages", it does not recite "a single adsorption chamber comprising two adsorption stages in a single processing space, wherein the stages share a distribution system and a pumping port". The courts have ruled that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

19. With respect to Applicant's argument that Blum fails to teach each of the adsorption assembly, annealing assembly and cooling assembly within the main

process chamber, it is again pointed out that Davis is relied upon for such a feature. In Davis, each of a plurality of process stations is provided in a main process chamber, as claimed. The courts have ruled that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karla Moore
Patent Examiner
Art Unit 1763
28 June 2007